

METHODS FOR STABILIZING AND CONTROLLING APOMIXIS

ABSTRACT

5 Methods are disclosed for detecting genetic instability for apomixis in angiospermous plant, and for enhancing, genetically stabilizing, and controlling apomixis expression in such plants. Enhanced expression, stabilization, and control are achieved by converting a facultative apomict to obligate apomixis. Enhanced expression of apomixis is further
10 achieved by increasing frequencies of unreduced egg formation and/or parthenogenesis. Genetic stabilization of apomixis is alternatively achieved by conferring mechanisms to a facultative apomict that, during facultative sexual seed formation, prevent the segregational loss of unique alleles at multiple loci, which cause apomixis, such that progeny produced sexually from the facultative apomict inherit the unique allelic combinations required to
15 maintain apomixis. The disclosed methods are used in various combinations to produce apomictic plants that possess improved yield, quality, and/or seed production characteristics.